

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A backlit key assembly comprising:
 - a key having a light translucent region, said key axially movable along a longitudinal axis of said assembly;
 - a base;
 - a key support structure operably connected to said base, said key support structure operable to guide said key when said key is axially movable along said longitudinal axis of said assembly;
 - a switch operable to generate a signal corresponding to said axial movement of said key, said switch including an opaque member; and
 - an illumination source mounted to said base in substantial alignment with said opaque member, said illumination source operable to provide light for backlighting said key assembly through said light translucent region.
2. The key assembly of Claim 1, wherein said opaque member is an electrical contact.
3. The key assembly of Claim 2, wherein said switch includes a movable layer and a fixed layer, and wherein said key includes an actuator to cause said movable layer to contact said fixed layer to operate said switch.
4. The key assembly of Claim 3, wherein said electrical contact is disposed on said movable layer.
5. The key assembly of Claim 3, wherein said movable layer is an actuation layer having a depressible member that extends outwardly from said actuation layer, said depressible member being aligned with said actuator of said key.
6. The key assembly of Claim 5, wherein said electrical contact is disposed on said depressible member.

7. The key assembly of Claim 3, wherein said actuator is in the form of a elongate member.

8. The key assembly of Claim 7, wherein said elongate member is integrally formed with said key.

9. The key assembly of Claim 1, wherein said base includes electrical circuitry for said illumination source.

10. The key assembly of Claim 1, wherein said illumination source is a light emitting diode.

11. The key assembly of Claim 2, wherein said switch includes a flexible layer and a fixed layer, said flexible layer separated from said fixed layer by a gap, and wherein said key assembly further includes an actuator to cause said flexible layer to contact said fixed layer, thereby operating said switch.

12. The key assembly of Claim 11, wherein said actuator is a depressible member that engages said key and extends outwardly away from said key to just proximal said flexible layer.

13. The key assembly of Claim 11, wherein said electrical contact is disposed on said flexible layer.

14. The key assembly of Claim 1, wherein said key support structure includes a socket adapted to slideably receive said movable key.

15. The key assembly of Claim 1, wherein said key support structure includes a first linkage rotatably coupled to a second linkage.

16. The key assembly of Claim 1, wherein said base includes a translucent or transparent member and a circuit board, said source of illumination mounted to said circuit board and said translucent or transparent member disposed between said switch and said circuit board.

17. The key assembly of Claim 1, wherein said translucent region of said key is an alphanumeric indicator.

18. The key assembly of Claim 17, wherein said alphanumeric indicator is formed from a laser-etching process.

19. A backlit key assembly comprising:

a key having a proximal surface and a distal surface with a translucent region, said key movable between a non-depressed position and a depressed position along a longitudinal axis of said key assembly;

a base;

a key support structure operably connected to said base, said key support structure operable to support said key between said non-depressed and depressed positions along said longitudinal axis of said key assembly;

a switch disposed adjacent to said base and operable to generate a signal when said key is moved proximally to said depressed position, an opaque portion of said switch in substantially alignment with said translucent region; and

a light source coupled to said base in substantial alignment with said opaque portion;

wherein said key assembly is operable to permit light from said light source to pass through said translucent region.

20. The key assembly of Claim 19, wherein said opaque portion of said switch is an electrical contact.

21. The key assembly of Claim 20, further comprising an actuation layer operable to maintain said key in said non-depressed position and further operable to return said key to said non-depressed position from said depressed position.

22. The key assembly of Claim 20, wherein said switch including an actuation layer operable to maintain said key in said non-depressed position and further operable to return said key to said non-depressed position from said depressed position.

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23. The key assembly of Claim 22, wherein said electrical contact is disposed on said actuation layer.

24. The key assembly of Claim 21, wherein said actuation layer includes an actuator to operate said switch.

25. The key assembly of Claim 21, wherein said switch includes an actuation layer having said electrical contact mounted thereon, and a switch layer having a second electrical contact disposed in overlapping alignment with said electrical contact such that said electrical contact contacts said second electrical contact when said key is in said depressed position.

26. The key assembly of Claim 21, wherein said switch includes an upper layer having said electrical contact mounted thereon, and a lower layer having a second electrical contact disposed in overlapping alignment with said electrical contact such that said electrical contact contacts said second electrical contact when said key is in said depressed position.

27. The key assembly of Claim 26, wherein said electrical contact includes a plurality of spaced-apart bars, the ends of said spaced-apart bars in electrical communication with electrical leads.

28. The key assembly of Claim 27, wherein said second electrical contact includes a plurality of spaced-apart bars disposed perpendicular to said spaced-apart bars of said electrical contact.

29. The key assembly of Claim 19, wherein said base includes a circuit board and a spacer, said spacer disposed between said switch and said circuit board.

30. The key assembly of Claim 29, wherein said spacer is translucent or transparent.

31. A backlit key assembly comprising:
a key having a light translucent region, said key axially movable from a first position to a second position along a longitudinal axis of said assembly;

base means for operatively supporting said key;

key support means operably connected to said base layer, said key support means for guiding said key when said key is axially movable along said longitudinal axis of said assembly;

switch means for generating a signal corresponding to said axial movement of said key, said switch means including an opaque member; and

illumination means for emitting light so as to backlight said key assembly through said light translucent region, said illumination means mounted to said base means in substantial alignment with said opaque member.

32. The key assembly of Claim 31, wherein said key support means includes a socket for slideably receiving said key.

33. The key assembly of Claim 31, wherein said key support means includes a first linkage pivotally coupled to a second linkage.

34. The key assembly of Claim 31, wherein said base means includes a spacer and a circuit board.

35. The key assembly of Claim 31, wherein said illumination means in a light emitting diode.

36. The key assembly of Claim 31, wherein said switch means includes an actuation layer having a first electrical contact mounted thereon, and a switch layer having a second electrical contact disposed in overlapping alignment with said first electrical contact such that said first electrical contact contacts said second electrical contact when said key is in said second position.

37. The key assembly of Claim 31, wherein said switch means includes an upper layer having a first electrical contact mounted thereon, and a lower layer having a second electrical contact disposed in overlapping alignment with said first electrical contact such that said first electrical contact contacts said second electrical contact when said key is in said second position.

38. In a backlit key assembly having a base, a switch layer disposed adjacent to said base and operable to generate a signal, a movable key having a translucent region and axially movable between a first and a second position, a key support structure operably connected to said base and operable to support said key between said first and second positions, and a light source operable to backlight said translucent region, said improvement comprising:

wherein said switch includes an opaque member, and wherein said light source is coupled to said base in substantial alignment with said opaque member.

39. The improvement of Claim 38, wherein said opaque member is an electrical contact.

40. A backlit key assembly comprising:

a key having a light translucent region, said key movable between a non-depressed position and a depressed position;

a circuit board;

a key support structure operably connected to said circuit board, said key support structure slideably receiving said key;

an actuation layer including a depressible member that extends outwardly from said actuation layer, said depressible member including a first electrical contact;

a switch layer disposed between said actuation layer and said circuit board, said switch layer including a second electrical contact in overlapping alignment with said first electrical contact; and

an illumination source mounted to said circuit board in substantial alignment with said first and second electrical contacts, said illumination source operable to provide light for backlighting said key assembly through said light translucent region;

wherein said first electrical contact contacts said second electrical contact when said key is movable to said depressed position, thereby generating a signal.

41. The key assembly of Claim 40, wherein said base includes an aperture in substantial alignment with said first and second contacts, said light source mounted through said aperture.

42. The key assembly of Claim 41, wherein said aperture is concentric with a portion of said movable key.

43. The key assembly of Claim 40, wherein said moveable key includes an elongate member having a protrusion portion, and wherein said key support structure having a protrusion portion, said protrusion portion of said elongate member operative to engage said protrusion portion of said key support structure to limit the length of travel of said movable key.

44. The key assembly of Claim 43, wherein said protrusion portions operative to limit said length of travel in an outwardly direction away from said circuit board.

45. The key assembly of Claim 40, wherein said light translucent region of said key is an alphanumeric indicator.

46. The key assembly of Claim 45, wherein said alphanumeric indicator is formed from a laser-etching process.

47. The key assembly of Claim 40, further comprising a translucent or transparent member disposed between said switch layer and said circuit board.

48. A backlit key assembly comprising:

a key having a top surface with a light translucent region, said key movable between a first and a second position when an axial force is exerted on said top surface;

a base;

a key support structure operably connected to said base, said key support structure operable to support said key between said first and second positions;

a switch disposed adjacent to said base and operable to generate a signal when said key is in said second position, said switch including an electrical contact;

a light source mounted to said base in substantial alignment with said electrical contact; and

a depressible member disposed adjacent to said switch, said depressible member operable to maintain said key in said first position when said axial force is not exerted on

said top surface of said key, and operable to return said key to said first position from said second position when said force is removed from said top surface of said key.

49. A backlit key assembly comprising:

a key having a light translucent region, said key movable between a non-depressed position and a depressed position along a longitudinal axis of said assembly;

a base;

a key support structure operable to support said key and adapted to connect said key to said base,

a switch overlaying said base and operable to generate a signal, said switch including an electrical contact;

an actuator disposed adjacent to said key and extending parallel to said longitudinal axis; said actuator operable to engage said switch when said key is in said depressed position; and

an illumination source mounted to said base in substantial alignment with said electrical contact, said illumination source operable to provide light for backlighting said key assembly through said light translucent region.